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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/552,500

07/17/2006

Maxime Makarov

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EXAMINER

STAFFORD, PATRICK

ART UNIT

PAPER NUMBER

2828

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/552,500	<b>Applicant(s)</b> MAKAROV ET AL.	
	<b>Examiner</b> PATRICK STAFFORD	<b>Art Unit</b> 2828	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 January 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 6-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

Claims 1-4 and 7-9 amended 28 January 2008.

Claim 5 cancelled 28 January 2008.

### ***Response to Arguments***

Applicant's arguments filed 28 January 2008 have been fully considered but they are not persuasive.

In response to applicant's arguments, the recitation controlling a spatio-temporal uniformity of a pulsed gas laser beam has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

In response to applicant's argument that the method taught by Noda '045 does not compensate for modifications of an uniformity of the electric discharge, the task appears to be carried out by any device that performs each limitation recited in the claim. Noda '045 discloses each limitation of the steps of the method. By performing these steps, the modifications of an uniformity of the electric discharge are compensated. Therefore, Noda '045 teaches compensating for modifications of an uniformity of the electric discharge as claimed in claim 1.

Art Unit: 2828

In response to applicant's argument that Noda '045 does not teach an axis of the X-ray preionisation beam is substantially in alignment with an axis of electric discharge, Noda '045 teaches the axis of the X-ray preionisation beam (Fig. 3, part "X-Ray") is aligned with the axis of electric discharge (Fig. 3, between parts 12 and 13).

In response to applicant's argument that Noda '045 does not teach producing a lateral intensification of an electric field in the space between the two electrodes to stabilize the electric discharge in time and space, Noda '045 teaches producing a lateral intensification of an electric field in the space between the two electrodes (col. 4, lines 31-38 and Fig. 3, parts 3 and 4). Noda '045 discloses each limitation of the steps of the method. By performing these steps, the electric discharges in time and space are stabilized.

Therefore, Noda '045 teaches stabilizing the electric discharges in time and space.

In response to applicant's argument that Noda '045 does not teach generating an axial intensification of the X-ray beam, Noda '045 teaches generating an axial intensification of the X-ray beam (col. 6, lines 10-13 and Fig. 3, part "X-ray").

In response to applicant's argument that Noda '045 does not teach a mask, Noda '045 teaches the use of a mask in the pulsed gas laser system (col. 3, lines 54-62 and Fig. 4, part 10).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2828

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4-5 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Noda et al (U.S. Patent 5,048,045, hereafter '045).

Claim 1: '045 teaches a method for controlling a spatio-temporal uniformity of a pulsed gas laser beam, in which a pulsed electric discharge is brought about in a gas (col. 4, lines 39-45) between two electrodes spaced apart (col. 3, lines 38-40 and Fig. 3, parts 12 and 13) and an X-ray preionisation beam is applied to the gas, wherein an axis of the X-ray preionisation beam is substantially in alignment with an axis of the electric discharge (col. 3, lines 45-46 and Fig. 3, part "X-ray" and axis between parts 12 and 13), the method comprising:

producing a lateral intensification of an electric field in the space between the two electrodes (col. 5, lines 27-31) inherently stabilizing the discharge in time and space; and  
generating an axial intensification of the X-ray beam to compensate for the modifications of an uniformity of the electric discharge resulting from the lateral intensification of the electric field by a progressive mask (Fig. 3, part 10 and col. 5, lines 59-67).

Claim 2: '045 a pulsed gas laser comprising:

two electrodes adapted to support a pulsed electric discharge brought about in a gas therebetween (Fig. 3, parts 12 and 13); and

a mask for applying an X-ray preionisation beam to the gas (Fig. 3, part 10), the X-ray having an axis substantially in alignment with an axis of the electric discharge (Fig. 3, part "X-ray" and axis between parts 12 and 13), wherein at least one electrode of

Art Unit: 2828

the two electrodes is profiled to comprise two raised lateral portions which allow a lateral intensification of the electric field to be obtained in a region between the two lateral portions (col. 3, lines 47-53 and Fig. 3, parts 7 and 8), wherein said mask is a progressive mask relative to the X-ray beam (Fig. 3, part 10). The mask of '045 is capable of performing the intended use of a progressively attenuating from a center of the electric discharge to edges thereof the X-ray preionisation beam to compensate for a lack of uniformity of the electric discharge resulting from the intensification of the electric field at the edges thereof.

Claim 4: '045 teaches the laser according to claim 2, characterized in that the two electrodes (101, 102) are profiled in order to obtain the lateral intensification of the electric field (col. 4, lines 31-34 and Fig. 3, part 4, curved profile).

Claim 9: '045 teaches the laser according to claim 2, characterized in that it is of the excimer type (col. 1, lines 6-7).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Noda et al (U.S. Patent 5,048,045, hereafter '045).

Claim 3: '045 teaches the laser according to claim 2. It teaches the height of the raised lateral portions is substantially less than the distance between the two electrodes (Fig. 3,

Art Unit: 2828

parts 7 and 8 and the distance between parts 12 and 13). It does not explicitly teach the height of the raised lateral portions is substantially in the order of one hundredth of the distance between the two electrodes. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the height of the raised lateral portions be substantially in the order of one hundredth of the distance between the two electrodes, since it has been found that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noda et al (U.S. Patent 5,048,045, hereafter '045) in view of Noda et al (U.S. Patent 5,077,749, hereafter '749).

Claim 6: '045 teaches the laser according to claim 2, characterized in that the progressive mask

is formed by a plate which absorbs the X-rays (col. 3, lines 54-59 and Fig. 4, part 6). It does not explicitly teach the thickness is reduced progressively from the locations opposite the two raised lateral portions where the absorption of the X-rays is at a maximum as far as a central portion where the absorption is substantially zero. However, '749 teaches a plate which absorbs the X-rays wherein the thickness is reduced progressively from the locations opposite the two raised lateral portions where the absorption of the X-rays is at a maximum as far as a central portion where the absorption is substantially zero (col. 7, lines 25-31 and Fig. 2, part 1) in order to equalize the X-ray. Therefore, it would have been obvious to one having ordinary skill in the art at the time

Art Unit: 2828

the invention was made to have a plate which absorbs the X-rays wherein the thickness is reduced progressively from the locations opposite the two raised lateral portions where the absorption of the X-rays is at a maximum as far as a central portion where the absorption is substantially zero in order to equalize the X-ray.

Claim 7: '045 and '749 teach the laser according to claim 6. '749 teaches the progressive nature of the reduction in thickness of the plate which absorbs the X-rays allows the profile of the absorption curve of the X-rays to be adapted to the profile of the variation of the electric field between these two lateral intensifications (col. 9, lines 40-47).

Claim 8: '045 and '749 teach the laser according to claim 6. '045 teaches the plate which absorbs the X-rays is reduced in thickness in accordance with two substantially linear ramps which extend from one of the surfaces thereof in the region of the edges of the discharge in order to open at the other surface, with a central hole being defined which corresponds to the maximum transmission (col. 3, lines 45-46 and Fig. 3, part 9).

### ***Conclusion***

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 2828

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICK STAFFORD whose telephone number is (571)270-1275. The examiner can normally be reached on M-Th 7:30-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. S./

Examiner, Art Unit 2828

/Minsun Harvey/

Supervisory Patent Examiner, Art Unit 2828